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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appl. No. : 09/890,907 Confirmation No. 9488  
Applicant (s) : Fibiger, et al.  
Filed : November 16, 2001  
TC/A.U. : 1732  
Examiner : Kuhns  
Title : NANOCOMPOSITE ARTICLES AND PROCESS FOR MAKING  
Docket No. : 44114  
Customer No. : 00109

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL, WITH SUFFICIENT POSTAGE IN AN ENVELOPE ADDRESSED TO: ASSISTANT COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450, ON:

May 13, 2004  
DATE OF DEPOSIT

Beth L. Ramon  
PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

*Beth L. Ramon*  
SIGNATURE OF PERSON SIGNING CERTIFICATE

5/13/04  
DATE OF SIGNATURE

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

BRIEF FOR APPELLANT - FEE SHEET

This is an appeal to the Board of Appeals from the action of the Primary Examiner finally rejecting Claims 1, 3, and 4, in the above-identified patent application.

Please charge the \$330.00 fee to our Deposit Account No. 04-1512. If this amount is incorrect, please charge or credit our account accordingly. One original and two duplicate copies of this sheet are enclosed.

Respectfully submitted,

*Nemia C. Damocles*

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Alexandria, VA 22313-1450

Sir:

BRIEF FOR APPELLANT

This is an appeal to the Board of Patent Appeals and Interferences from  
the Final Rejection of the Examiner rejecting Claims 1, 3 and 4.

Three copies of the Brief are supplied herewith for the Honorable  
Board of Appeals. In accordance with 37 CFR §1.194(b), Appellants defer request for  
oral hearing until one month after the date of the Examiner's answer.

Real Party in Interest

The Real Party in Interest in this Appeal is The Dow Chemical  
Company.

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### Related Appeals and Interferences

At this time there are no related appeals or interferences.

### Status of Claims

Claims 1, 3 and 4 are on appeal, having been finally rejected in a communication mailed on December 17, 2003. A copy of the claims on appeal is attached as an appendix to this appeal (Appendix A).

### Status of Amendments

The Advisory Action mailed on May 5, 2004 did not indicate whether or not the amendment to the specification made in Applicants' Response to the Final Rejection was entered into the file. Applicants did not make any further amendments to the claims.

### Summary of Invention

Referring to Claim 1 and to the specification, on Page 1, Lines 19-29; Page 2, Lines 5-14 and Lines 23-31; Page 3, Lines 6-13 and Lines 21-29; and Page 4, Lines 4-12, Appellants' invention is a process for making an article, the article comprising a nanocomposite polymer, the article selected from the group consisting of a structural foamed polymer, a multilayer polymer film, sheet or tube, a pultrusion structural profile, a compression molded polymer article formed from an extruded fiber reinforced polymer pre-form, a strand foamed polymer article and an article formed by the SCORIM process, comprising the steps of: dispersing a multi-layered silicate material with the polymer so that the polymer has dispersed therein single layers of silicate material, double layers of silicate material, triple layers of silicate material, four layers of silicate material, five layers of silicate material and more than five layers of silicate material, the volume percent of the one, two, three, four and five layers of silicate material being greater than the volume percent of the more than five layers of silicate material to form a nanocomposite polymer; the process characterized by the step of forming the nanocomposite article by flowing the nanocomposite polymer to align the planes of the one, two, three, four and five layers of silicate

material so that more than one half of the planes have the same orientation within thirty degrees as determined by electron microscopy.

In reply to the Office communication mailed July 1, 2003, Appellants elected to prosecute, without traverse, the species comprising structural foamed polymer. Claims 1, 3 and 4 read on the elected species. The Office communication states on Pages 2-3: "Upon allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141."

### Issues

(1) Whether Claims 1, 3 and 4 are unpatentable under 35 U.S.C. 103(a) over Pinnavavia et al. (5,801,216).

### Grouping of Claims

For the purposes of this appeal, the Board may consider all pending claims in one group that stands or falls together.

### Argument

Claims 1, 3 and 4 are rejected under 35 USC 103(a) as being unpatentable over Pinnavia et al. (5,801,216). This rejection is respectfully traversed for the following reasons.

U.S. Patent 5,801,216 (Pinnavaia) does not teach or suggest a process for making an article comprising a nanocomposite polymer. What Pinnavaia teaches is a process for making a nanocomposite polymer. Pinnavaia does not teach or suggest a process for making an article by forming the nanocomposite polymer into an article by flowing the nanocomposite polymer to align the planes of the one, two, three, four and five layers of silicate material so that more than one half of the planes have the same orientation within thirty degrees as determined by electron microscopy, as required in Claim 1.

Forming the nanocomposite polymer into an article by flowing the nanocomposite polymer to align the planes of the one, two, three, four and five layers

of silicate material is done by any one of the following processes which are mentioned in the present application:

- (1) Coextrusion Process, mentioned on Page 7, Lines 31-34.
- (2) Pultrusion Process, mentioned on Page 8, Lines 18-22.
- (3) Extrusion Process, mentioned on Page 9, Lines 7-9.
- (4) SCORIM Process, mentioned on Page 9, Lines 25-30.

Pinnavaia does not mention anything about coextrusion, pultrusion, extrusion or SCORIM process.

In the Advisory Action mailed to Appellants on May 5, 2004, the Examiner states that the Abstract of the cited reference teaches forming the composite into a thin layer, such that Claim 1, in reciting the formation of a film, is readable on the reference.

Claim 1 recites a process for the formation of a multilayer film, among other things, and is not readable on the cited reference.

The Abstract referred to by the Examiner reads:

“...The flexible composites are particularly useful for seals and other thin layer applications.”

The “thin layer” applications are described in column 7, line 58, to column 8, line 9 of the cited reference as follows:

“The flexible composites of the present invention are particularly useful as sealants and flexible adhesives....Other uses where a relatively thin flexible layer is needed are for instance in the dampening of interfaces between vibrating surfaces.”

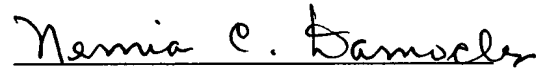
The above description does not disclose the formation of a multilayer polymer film, as required by Claim 1.

In view of the above remarks, Appellants submit that Claims 1 and 3-4 are patentable under 35 USC 103(a) over Pinnavia et al. (5,801,216).

Conclusion

In view of the above remarks, Appellants respectfully request that the Final Rejection of Claims 1, 3 and 4 by the Examiner be reversed and that a Notice of Allowance as to these claims be issued.

Respectfully submitted,



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APPENDIX A

1. A process for making an article, the article comprising a nanocomposite polymer, the article selected from the group consisting of a structural foamed polymer, a multilayer polymer film, sheet or tube, a pultrusion structural profile, a compression molded polymer article formed from an extruded fiber reinforced polymer pre-form, a strand foamed polymer article and an article formed by the SCORIM process, comprising the steps of: dispersing a multi-layered silicate material with the polymer so that the polymer has dispersed therein single layers of silicate material, double layers of silicate material, triple layers of silicate material, four layers of silicate material, five layers of silicate material and more than five layers of silicate material, the volume percent of the one, two, three, four and five layers of silicate material being greater than the volume percent of the more than five layers of silicate material to form a nanocomposite polymer; the process characterized by the step of forming the nanocomposite article by flowing the nanocomposite polymer to align the planes of the one, two, three, four and five layers of silicate material so that more than one half of the planes have the same orientation within thirty degrees as determined by electron microscopy.

3. The process of Claims 1-2, wherein the weight percent of the multi-layered silicate material dispersed in the polymer is in the range of from one to twenty percent.

4. The process of Claims 1-2, wherein the weight percent of the multi-layered silicate material dispersed in the polymer is in the range of from two to ten percent.